# New threat seen to earth's ozone layer

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## Body

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The ozone layer surrounding the globe is a shield, protecting us from the harmful ultraviolet radiation that comes from the sun. The hole in our ozone layer, discovered in 1985, is now under threat again, from four new man-made gases.

Scientists from the University of East Anglia (UEA) have published a new study in the Journal Nature Geoscience[1], showing that four new man-made gases are now putting the ozone layer at risk, again. The source of the gases is still unknown, but worth study.

The latest study involved the collection of air samples from the unpolluted environment of Tasmania, dating back to 1978, and in the air extracted from firn (compressed snow) cores from Greenland. Firn air traps gas bubbles, dating back decades, enabling scientists to "look back in time," doing measurements using modern technology.

Three of the gases are new Chlorofluorocarbons (CFCs), which act to destroy ozone, and one other is a hydrochlorofluorocarbon (HCFC), which can also damage ozone. This is bad news for the ozone belt surrounding the globe, and a potential risk for environmental policies and legislation.

The four gases[2] have been given the following identifications, CFC-112, CFC112a, CFC-113a, HCFC-133a. The hydrochlorofluorocarbon, HCFC-133a and CFC-113a, are intermediaries in the production of widely used refrigerants, while CFC-112 and 112a are widely used in the production of solvents for the cleaning of electrical components. CFC113a is also an "agrochemical intermediate for the manufacture of pyrethroids." This chemical was once used as an insecticide.

According to the UEA study[3], measurements were made of the three CFCs, the man-made gases previously unidentified in the atmosphere. For two of these, CFC-112 and CFC112a, the measurements recorded reflected those anticipated: there is no detectable level present in the air before the 1960s, followed by growing abundance until the mid-1990s. The subsequent decline was expected because of the Montreal Protocol.

But one Chlorofluorocarbon, CFC-113a, is steadily accumulating, including up to the latest measurements taken in 2012. Based on these measurements, this means that CFC-113a is still being produces by some sort of industrial activity, over and above the protocol restrictions. One possible source cited could be agricultural insecticides.

In all, the report says that at least 74,900 tons of these gases have already been released into the atmosphere, and while they will slowly dissipate into the atmosphere, it will take an extremely long time to get rid of them, even if emissions were to stop today.

[1]: http://www.nature.com/ngeo/journal/vaop/ncurrent/full/ngeo2109.html [2]: http://www.bbc.com/news/science-environment-26485048 [3]: http://theconversation.com/earths-ozone-layer-threatened-by-new-man-made-gases-24168

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